



International Scientific Collaboration Is the Key

U.S. agriculture directly benefits from international collaboration in agricultural research through access to new ideas and technologies, global germplasm collections, and foreign research sites. Since its inception, the Agricultural Research Service has engaged in partnerships with countries that are scientifically advanced in agricultural research. Recognizing the importance of international cooperation in addressing domestic and international research priorities, ARS established the Office of International Research Programs (OIRP) in 1998.

By helping to solve worldwide agricultural problems, we can sometimes eliminate those problems or at least prevent them from spreading to other countries. International scientific collaboration is key both to ARS's primary mandate to protect and enhance U.S. agricultural production systems and to tackling global challenges, like food security and energy.

ARS's contribution to the worldwide effort to enhance agriculture starts with a sound germplasm system. Our germplasm collections are essential to preserving global biodiversity and improving agricultural productivity. Numerous ARS collections help protect the genetic base of crops, livestock, poultry, and aquatic species and provide essential genetic materials to support research and genetic improvement. The collections are available to researchers worldwide and are key to global food security.

Supporting global food security is among the top priorities of the U.S. Department of Agriculture, as the world population grows to 9 billion by 2050. ARS takes this challenge seriously by providing knowledge, technologies, and systems that improve and sustain agricultural productivity through international agricultural research cooperation and technology transfer. ARS's work is one component of the joint USDA and U.S. Agency for International Development Norman Borlaug Commemorative Research Initiative, which supports Feed the Future, the U.S. government's global

hunger and food security initiative (www.feedthefuture.gov).

ARS partners with the research centers of the Consultative Group on International Agricultural Research, a network of 15 international agricultural research centers, and with national agricultural research institutions and other research organizations in many countries to help ensure that new technologies for production, livelihoods, and the environment are available for poor people and their communities. A sampling of these partnerships and the benefits of this research is found on pages 4 through 13.

As you'll read in these stories, the nature of agricultural problems is constantly evolving, and international scientific collaboration is essential to combat these challenges. Since 2005, for example, ARS has been working with several organizations that partner under the Borlaug Global Rust Initiative to find wheat that can resist the highly virulent wheat stem rust known as "Ug99." Wheat varieties around the world have essentially no resistance to the disease. A major goal, therefore, is to find wheat varieties that can resist Ug99 and get those varieties to growers—in the United States and elsewhere—before the disease arrives.

For animals, Rift Valley fever, foot-and-mouth disease (FMD), and East Coast fever are examples of diseases that require continued international alliances in order to deal with global threats to livestock, to food security, and possibly to human health. These diseases devastate livestock and could impact the livelihood of farmers in the United States and in developing nations. An example of such a global partnership that ARS has led is the Global Foot and Mouth Disease Research Alliance (GFRA). Through GFRA, ARS scientists are able to work with the international scientific community to acquire greater knowledge about FMD and develop novel tools to aid in the disease's control and eventual eradication.

In 1998, through a trust fund cooperative agreement managed by OIRP, ARS and the Brazilian agricultural research corporation

named "EMBRAPA" established the LABEX program. LABEX allows ARS and Brazilian scientists to host each other's researchers for mutually beneficial efforts in areas from food safety to nanotechnology to bioenergy. The article beginning on page 14 provides a glimpse at some of the many success stories, past and present, in LABEX.

Our international efforts also include five permanent research laboratories—located in France, Greece, Australia, Argentina, and China—that have the principal mission of finding and evaluating new biological control agents. Once an invasive species has become a problem in the United States, these biological controls can help restore balance, often permanently, without the use of chemicals.

ARS-funded scientists in Pacora, Panama, perform research on rearing and distributing sterile screwworm flies. Sterile males released in eastern Panama—by the U.S.-Panamanian Commission for the Eradication and Prevention of Screwworms—keep Central and North America free of this pest that eats the living flesh of livestock, wildlife, and people.

Finally, our laboratory in Kerrville, Texas, works closely with Mexico, Brazil, and Australia to develop better methods to keep the United States free of the cattle fever tick. Eradication of this tick in America began in 1912 and was largely successful by 1943, saving the U.S. cattle industry billions of dollars.

Agriculture is a global enterprise. By maintaining effective and strategic international research partnerships, ARS will be better positioned to protect U.S. agriculture and keep it competitive. Through international research engagements, ARS is better able to combat animal and plant diseases and respond to global climate change threats.

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